RENEWABLE ENERGY RESOURCES PROGRAM REPORT

January through December 2013

Illinois Department of Commerce and Economic Opportunity
Illinois Energy & Recycling Office
Renewable Energy Resources Program
500 East Monroe
Springfield, Illinois 62701

Illinois
Department of Commerce
& Economic Opportunity
Pat Quinn, Governor

Executive Summary

Since its inception, the Renewable Energy Resources Program (RERP) has successfully facilitated over $373 million of total investment in renewable energy projects in Illinois through $59 million in RERP grant and rebate expenditures (see figure below). The Department of Commerce and Economic Opportunity (the Department) finds that the facilitation of renewable energy projects in Illinois brings economic development benefits to the state including new income streams, new jobs, new investments and new property tax sources.

Fiscal Year	Incentives Awarded ($)	Total Project Cost ($)	Number of Grants Issued	Number of Rebates Issued
1999	$40,265	$90,381	2	3
2000	$2,520,831	$10,276,563	14	20
2001	$2,462,423	$5,666,165	23	35
2002	$8,109,613	$66,009,091	25	37
2003	$6,394,456	$69,126,237	32	52
2004	$5,175,936	$104,660,966	16	65
2005	$1,366,560	$3,063,006	5	68
2006	$568,870	$1,617,687	0	110
2007	$3,500,021	$11,045,159	35	165
2008	$2,307,895	$3,719,918	2	164
2009	$4,876,068	$35,035,919	24	184
2010	$6,121,781	$13,028,846	3	222
2011	$2,220,457	$5,469,831	3	109
2012	$6,326,409	$24,792,036	24	178
2013	$6,818,840	$19,602,684	17	184
2014*	$101,442	$472,457		15
TOTAL	**$58,911,867**	**$373,676,946**	**225**	**1,611**

* FY 2014 projects funded by 12/31/13

Table 1: Projects Funded through the Renewable Energy Resources Program, 1999-2013.

In 2013, about $3 million in incentives was provided to support over $15.6 million in renewable energy projects. This consisted of about $1.2 in solar and wind energy rebate incentives and over $1.6 million in grants for larger solar and wind energy projects (projects over $100,000 in total cost).

This report contains four parts:

Part I:	Authorization and Funding Sources
Part II:	Report on the Renewable Energy Resource Base in Illinois
Part III:	Report on Program Implementation
Part IV:	Report on Legislative Recommendations

Part I: Authorization and Funding Sources

Authorization

The Renewable Energy, Energy Efficiency, and Coal Resources Development Law (20 ILCS 687, "the Law") of 1997 directs the Department of Commerce and Economic Opportunity (the Department) to administer the Renewable Energy Resources Program (RERP) and to provide grants, loans and other incentives to foster investment in, and the development and use of, renewable energy resources. The Law directs the Department to establish eligibility criteria for the incentives and to review them annually and adjust them as necessary. The provisions of this Law are repealed ten years after the effective date unless renewed by act of the General Assembly. The current sunset date is December 12, 2015.

The Law defines "renewable energy resources" to include energy from wind, solar thermal energy, photovoltaic cells and panels, dedicated crops grown for energy production and organic waste biomass, hydropower that does not involve new construction or significant expansion of hydropower dams and other such alternative sources of environmentally preferable energy. "Renewable energy resources" does not include, however, energy from the incineration, burning or heating of waste wood, tires, garbage, general household, institutional and commercial waste, industrial lunchroom or office waste, landscape waste, or construction or demolition debris.

Contributions to the Renewable Energy Resources Trust Fund

Funding for the Renewable Energy, Energy Efficiency, and Coal Resources Development Law is required by the Renewable Energy Resources and Coal Technology Development Assistance Charge as follows:

1) $0.05 per month per residential electric service;

2) $0.05 per month per residential gas service;

3) $0.50 per month per nonresidential electric service taking less than 10MW of peak demand during the previous calendar year;

4) $0.50 per month per nonresidential gas service taking less than four million therms of gas during the previous calendar year;

5) $37.50 per month per nonresidential electric service taking 10MW or greater of peak demand during the previous calendar year;

6) $37.50 per month per nonresidential gas service taking four million or more therms of gas during the previous calendar year.

Fifty percent of the moneys collected are deposited into the Renewable Energy Resources Trust Fund. The remaining fifty percent is deposited in the Coal Technology Development Assistance Fund for use under the Illinois Coal Technology Development Assistance Act. The Renewable Energy Resources Trust Fund receives approximately $5,000,000 to $6,500,000 per year to fund eligible projects.

Part II: Report on the Renewable Energy Resource Base in Illinois

The renewable energy resources in Illinois with significant growth potential include biogas and biomass energy, solar energy and wind energy resources. The following sections discuss each of these renewable energy resources.

Biogas and Biomass

Biogas refers to the methane produced by livestock manures and wastes, municipal waste water sludge, and segregated organic wastes. Biogas produced by anaerobic digestion is a potential source of energy, can destroy disease causing pathogens and reduce the volume of disposed waste products. Biomass refers to plant and plant-derived material that can be used either as a source of energy or for its chemical components and includes dedicated crops grown for energy production as well as agricultural residues. Biomass commonly refers to organic material grown to produce biofuels but also includes organic materials combusted to produce heat energy.

Although much of the resource is highly cost-constrained for electric generation in the near future (though not for transportation fuels, e.g., ethanol), the economics of biogas and biomass to energy systems are improving. Gasification and co-firing technologies with combined heat and power are technologically feasible for large-scale electric generation in Illinois. While such systems would likely create new markets for farmers, and reduce pollution levels for all traditional power plant pollutants, the economic feasibility of the systems, particularly in competition with other renewable energy resources such as wind energy, will hinge on further improvements that reduce collection and transportation costs.

Created in 2010, the Illinois Biomass Working Group (IBWG) continues to help link farmers businesses, universities, and public agencies to share information and collaborate to advance biomass energy in Illinois. The working group is managed by the Value Added Sustainable Development Center at the Illinois Institute for Rural Affairs at Western Illinois University. The IBWG has periodic meetings and field visits to biomass-related businesses, and has also created a website for the working group to share information.

Through the USDA Farm Services Agency, the Biomass Cop Assistance Program (BCAP) provides incentives to eligible farmers and forest landowners for the establishment and production of biomass crops for heat, power, bio-based products and biofuels. BCAP project areas are specific geographic areas where producers grow eligible biomass crops. Producers then receive annual payments for growing those crops. Thus far, no BCAP project areas in Illinois have been approved.

The continued support through the Renewable Energy Resources Program and other state and federal incentives, as well as research and development support through the Department of Agriculture and Illinois' universities will be crucial in the further development of biogas and biomass resources in Illinois.

Solar Energy

Solar technologies use energy from the sun to provide heat, light, hot water, electricity and even cooling, for homes, businesses, and industry. Illinois has a significant solar energy resource and installations of solar thermal and solar photovoltaic (electric) systems are vastly increasing.

With the new requirements for solar under the renewable portfolio standard (enacted in 2010), Illinois started to see the development of solar farms. Two solar farms received long-term contracts through the Illinois Power Agency in 2011 to help meet the requirements of the Renewable Portfolio Standard. Invenergy developed a 20 MW solar farm in LaSalle County. Rockford Solar Partners was also selected by the Illinois Power Agency to provide solar energy, completed the installation of a 3 MW solar farm at the end of 2012. There has also been significant development of large distributed solar energy projects to meet the needs of large energy users such as large retailers, manufacturing facilities, and governmental agencies and non-profit entities. For example, in late 2013, the Shedd Aquarium in Chicago installed a 264 kW solar PV system that will not only provide a significant portion of the facilities energy needs, but will also have an educational component for the thousands of visitors to the Aquarium each year. With this significant development of solar in the last few years, there is now over 50 MW of solar photovoltaic systems spread throughout the state of Illinois.

However, with so many municipalities in the state deciding to provide aggregation services and purchasing electric power for their residence, the Illinois Power Agency customer base has shrank to the point that the earliest they project that they will need to procure renewable energy to meet the renewable portfolio standard is 2018. Also, now that a majority of electric customers in Illinois are now purchasing power from alternative retail electric service companies (ARES); these ARES must provide compliance payments that goes into a renewable energy fund. However, none of these renewable energy funds have yet to be used to purchases RECs and purchase power under a long-term power purchase agreement, and based on the current rules will not be able to until at least 2018. Consequently, the renewable energy portfolio is not currently providing any incentive for renewable energy development in Illinois

Since 1999, approximately 20 MW of photovoltaic systems and over $23 million in solar thermal systems have been supported with over $29 million in grants and rebates through the Renewable Energy Resources Program. While the price of solar photovoltaic systems have declined over 50% in the last few years, financial support through the Renewable Energy Resources Program is necessary to continue to encourage the development of solar energy resources throughout Illinois. Solar energy is becoming more cost competitive, however, since the retail prices of electricity and natural gas are also falling, there is still a ways to go before solar will be a cheaper source of energy.

Illinois is also trailing the remainder of the country in solar development. Though Illinois has the fifth highest potential for rooftop solar PV in the country (estimated at 26,000 MW), according to the Solar Energy Industries Association Illinois ranks 18th in solar development. Illinois is considerably behind states ranked in the top 10 of solar development; for example, Illinois has a total solar capacity over 50 MW, while Massachusetts installed about 45 MW just in the 3rd quarter of 2013 alone.

Wind Energy

Wind is a clean, inexhaustible energy resource and is one of the fastest-growing forms of electricity generation in the United States. The potential for wind energy development in Illinois is great. The U.S. Department of Energy's National Renewable Energy Laboratory (NREL) estimates over 9,000 MW of commercial wind energy potential in the state. According to the American Wind Energy Association (AWEA), Illinois ranks 14th in the nation in potential wind resources. Modern wind generation investments, at current prices, can be competitive with more traditional sources of new electric generation and therefore a valuable hedge against higher electric costs that may result from over reliance on traditional energy resources. The federal production tax credit (or PTC, currently valued at 2.2 cents per kWh) was renewed through 2013; however, with the late renewal of the PTC through 2013 and the uncertainty of the future of the PTC beyond 2013, wind farm development has slowed down nationally.

In Illinois, over 3,565 MW of wind energy capacity have been installed, ranking Illinois 4th in the country in wind power capacity. Illinois added 518 MW of wind energy capacity in 2012, and 200 MW additional wind was installed in 2013. However, there are many wind projects being developed in Illinois, with another 3,071 MW of projects have been permitted (according to the Illinois Wind Working Group).

Though the Illinois Power Agency is not expected to procure more renewable energy in order to meet the Illinois Renewable Portfolio Standard until at least 2018, there is still strong interest in wind development in Illinois from other states. Illinois has significant transmission resources, with connections to the PJM and MISO regional power grids (Midwest and parts of east coast region), and there are several transmission line expansion projects in development.

Wind energy has a significant economic impact on the state. According to the most recent study conducted by the Center for Renewable Energy at Illinois State University, the wind industry has supported 2,412 jobs for the construction of the wind farms and 211 long-term jobs for the operations of the wind farm. The wind farm developments also provide indirect and induced economic impacts to the communities they are built in, supporting about 19,047 jobs during the construction phases and 814 long-term jobs. Furthermore, these wind farms have provided $13 million per year in lease payments to landowners, and provide over $28.5 annually in property taxes to local governments.

Illinois is also a leader in wind turbine manufacturing with major wind industry manufacturers such as Trinity Structural Towers and gearbox manufacturer Winergy. Over 30 other companies

in Illinois involved in some component of the wind energy supply chain, and there are also eight wind project developers with North American headquarters in Chicago. According to AWEA, over 1,000 employees work in the wind energy manufacturing sector in Illinois.

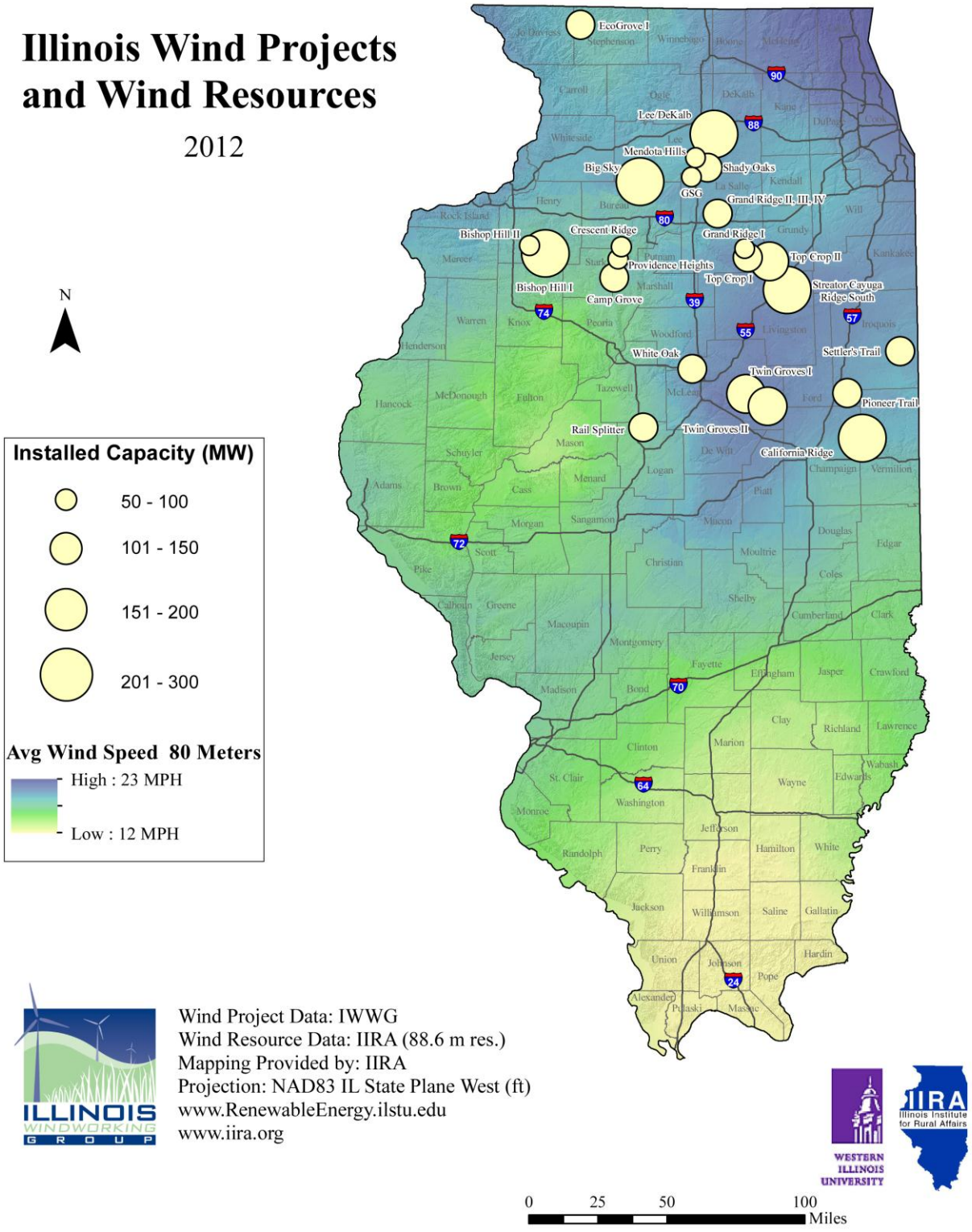

FIGURE 1: The Illinois Windpower Projects Map, prepared by the Illinois Institute for Rural Affairs and the Illinois Wind Working Group, indicates over 3,565 MW of installed wind capacity in Illinois.

There is also interest in small-scale and community-scale wind turbines in Illinois. Beginning in FY 2010, DCEO started providing rebates for wind turbines less than 100 kW. Three rebates were paid to support about 25 kW of small wind projects in 2013. DCEO also provided a grant to one small municipality that completed installation of a 100 kW wind turbine in 2013.

Part III: Report on Program Implementation

RERP Implementation Summary, January 1997 to December 2011

With the passage of the Law in December 1997, the Department developed draft grant and rebate program guidelines and established eligibility criteria. These drafts were reviewed in 1998 by trade and advocacy organizations such as the University of Illinois, American and Illinois Solar Energy Associations, American Wind Energy Association, U.S. Dept. of Energy, U.S. Dept. of Agriculture, Center for Neighborhood Technology, and Environmental Law and Policy Center. The Department developed final program guidelines and released the program in November of 1998 with the first RERP grants and rebates awarded in March of the following year. As of December 2013 the Renewable Energy Resources Program has awarded a total of 2220 grants and over 1600 rebates totaling more than $55 million in incentives for renewable energy projects in Illinois.

2011 Renewable Energy Resources Program

Solar and Wind Energy Rebate Program

Demand for the Solar and Wind Energy Rebate Program continued to be very strong in 2013; the Department received over $3 million in rebate request in the six weeks the program was opened in FY 2013. One hundred and seventy-four projects were funded for the installation of solar thermal, solar photovoltaic (electric), or wind turbine projects in FY 2013, compared to 197 projects in 2012 and 109 projects in 2011.

Table 2: FY2013 Solar and Wind Rebate Program Results

Type of System	Number of Projects	Rebate Amount	System Capacity (kW)
PV	150	$1,698,935	949
ST	20	$223,808	----
Wind	6	$121,300	72

At current funding levels, the Department is unable to sustain the program's rate of growth. In, FY2013 (which opened in September 2012), even with incentives cut 30% and the rebate cap reduced 80%, there was still very strong demand for rebate funds. The program received over 390 applications and was closed in two months because there was already more than enough applications to deplete all of the rebate funds for the year. In FY2014, the Department changed from a first come first serve basis to a lottery system for considering applications. The Department received over 320 rebate applications over a 6 week open period.

Biogas and Biomass to Energy Grant Program

In 2013, a two-year grant was initiated with the Energy Resources Center (ERC) at the University of Illinois at Chicago to administer the biogas and biomass to energy grant program. Over $300,000 of funding was initially available for grants to applicants interested in installing a biomass or biogas to energy system. ERC selected two projects for funding feasibility studies, but no projects were installed during 2013

Community Solar and Wind Grant Program

The Department issued a Request for Applications (RFA) in March 2013 for Community Solar and Wind projects. The program offers incentives to businesses, non-profit organizations, and public sector entities interested in solar or wind energy systems to meet a portion of their energy needs. Businesses are eligible for incentives up to 30% of total project cost, and non-profit and public sector entities are eligible for incentives for up to 50% of the total project cost.

The Department received 26 applications requesting $4 million in incentives. The Department selected 15 projects (all solar PV) to be awarded about $2 million in support. These projects are expected to support the development of over 2.4 MW of solar photovoltaic projects and will cost over $10 million to complete. As of the end of 2013, three of these projects were installed and operating.

Part IV: Report on Legislative Recommendations

Demand for funds through the Department's Renewable Energy Resources Program has continually grown, especially over the last five years. For example, the FY2014 Solar and Wind Energy Rebate Program (open in September 2013) received over 320 applications requesting $3 million in incentives within a six week period. In each of the last five program years, the rebate program has been closed within a few weeks because of overwhelming demand for the limited program funds.

There are three actions that would help the State to encourage further development of renewable energy in Illinois. First, since the Renewable Energy Resources Trust Fund is set to expire in December in 2015, legislation to extend the program to December 2020 should be considered. While solar and wind energy is becoming more cost competitive, it is not quite to price parity with conventional sources of electric generation such as natural gas. For example, even though the costs of solar photovoltaic systems have declined over 50% in the last five years, natural gas prices have also declined significantly. Another barrier to solar and wind development for homeowners and businesses is the large upfront cost of purchasing a system. It is hoped that as technology improves and prices continue to decline for solar and wind, that there will be less of a need to incentivize renewable energy development in the future.

Second, a prohibition of "borrowing" from the renewable energy fund for the state general fund would allow for program continuity and lessen the disruptions in the renewable energy markets in Illinois that the lack of funding has caused over the last few years. Many renewable energy projects are put on hold or cancelled when the state goes several months without funds available for the RERP.

Third, an increase in the annual RERP funding is necessary to encouraging the long term growth of renewable energy and supporting economic development in the state of Illinois. An increase in the Renewable Energy Resources and Coal Technology Development Assistance Charge would provide additional funding with little cost to ratepayers. For example, a doubling of the charge would only increase a residential customer's electrical service bill by $0.60 per year, while increasing the funding to the RERP programs.